

**Work Order ID 52455**

Friday, September 25, 2009 8:56:56 AM

Page 1

Item ID: D212-664-101

Accept

Revision ID: C

Item Name: Crosstube Fwd




Start Date: 9/25/2009 Start Qty: 1.00

Required Date: 10/12/2009 Req'd Qty: 1.00

Reference:

Approvals: Process Plan: RL Date: 09-24 Tooling: \_\_\_\_\_ Date: \_\_\_\_\_  
QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_

Run Start   
Stop 

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Draw Number	Draw Rev.	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
<b>Draw Nbr</b>	<b>Revision Nbr</b>								
D212-664-141	Rev C								
100		0.00							
	DOCUMENT CONTROL								
DC	Memo	0.00							
Document Control	Photocopy bluefile and create labels as per PPP D212-664-101 CHG003								
									<u>for BG 09/11/03</u>
110		0.00							
	Pick Kit								
Packaging	Packaging								
Packaging	Memo	0.00							
									<u>9/11/03</u> <u>SV</u>
120		0.00							
	BENDING MACHINE - CROSSTUBES								
CNC Bend 2	Memo	0.00							
CNC Alpha 160 Bender	Bend tube as per Dwg D212-664-141 using CNC bender program 212-fw and Folio FT015								
									<u>(IX)</u> <u>MB 09-10-19</u>

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Customer:



Reference:

Approvals: Process Plan: \_\_\_\_\_ Date: \_\_\_\_\_ Tooling: \_\_\_\_\_ Date: \_\_\_\_\_

QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_

Run Start

Stop

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Draw Number	Draw Rev.	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
130	QC15- Crosstube Dimensional Check	0.00							
									
QC	Memo	0.00				(+10)	φ		
Quality Control									
140	Crosstubes	0.00							
									
Crosstubes	Memo	0.00				(14)	Q		
Crosstubes	1-Drill pilot holes in tube as per Dwg D212-664-141 using drill Jig DT8548 & DT8549								
	2-Ream hole to finish size in tube as per Dwg D212-664-141 using drill Jig DT8548 & DT8549. Check dimensions between holes, both sides on both cuffs, to ensure alignment with saddle holes.								
	3-Scribe part # and batch # using vibrating stylus as per Dwg D212-664-141								
	4-Deburr & Inspect for surface damage. Repair damage within limits as per Dwg D212-664-141								

MB 09-10-21

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Start Date: 9/25/2009 Start Qty: 1.00

Required Date: 10/12/2009 Req'd Qty: 1.00









Reference:

Approvals: Process Plan: \_\_\_\_\_ Date: \_\_\_\_\_ Tooling: \_\_\_\_\_ Date: \_\_\_\_\_

QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_

Run Start

Stop

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Draw Number	Draw Rev.	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
150  HandFXtube	Crosstubes Chemical Conversion	0.00						MB	09-10-21
Hand Finishing Crosstubes	Memo Chemical Conversion Coat within 24 hours of bending and drilling	0.00							
160  QC	QC5- Inspect part completeness to step on W/O	0.00							
Quality Control	Memo	0.00							
170  Outsource2	Outsource process - NDT per QSI038 4.1	0.00							
Outsource process - NDT	Memo Liquid Penetrant Inspection as per QSI 038 Issue P/O: 10655 LPI as per ASTM 1417 Level 2 Attach copy of NDT results to work order	0.00							BL 09-10-28

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Item ID: D212-664-101

Accept



Setup Start



Revision ID: C

Stop



Item Name: Crosstube Fwd

Start Date: 9/25/2009 Start Qty: 1.00



Cust Item ID:

Required Date: 10/12/2009 Req'd Qty: 1.00

Customer:

Reference:

Run Start



Stop



Approvals: Process Plan: \_\_\_\_\_ Date: \_\_\_\_\_ Tooling: \_\_\_\_\_ Date: \_\_\_\_\_

QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Draw Number	Draw Rev.	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
180	Receive & Inspect for Damage & Mat'l Certs	0.00							
	Packaging								
Packaging	Memo	0.00							
Packaging	Ensure copy of NDT results attached to work order.								
190	QC5- Inspect part completeness to step on W/O	0.00							
	QC	0.00							
Quality Control	Memo								
	Inspect for damage & ensure results are as per Dwg D212-664-141								

10/29/09

mt AR 10 29 ①

# Work Order ID 52455

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Item ID: D212-664-101

Accept



Setup Start



Revision ID: C

Stop



Item Name: Crosstube Fwd

Start Date: 9/25/2009 Start Qty: 1.00



Cust Item ID:

Required Date: 10/12/2009 Req'd Qty: 1.00

Customer:

Reference:

Approvals: Process Plan: \_\_\_\_\_ Date: \_\_\_\_\_ Tooling: \_\_\_\_\_ Date: \_\_\_\_\_

QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_

Run Start



Stop



Sequence ID/  
Work Center ID

Operation  
Description

Set Up/  
Run Hours

Draw  
Number

Draw  
Rev.

Plan  
Code

Accept  
Qty

Reject  
Qty

Reject  
Number

Insp.  
Stamp

200

Spray Painting per QSI005 4.2

0.00



SprayPaint

RT

09.11.02

SprayPaint

Memo

0.00

Spray Painting

1-Prime inside and outside crosstube as per QSI 005 4.2  
2-Paint outside crosstube with White Imron as per QSI 005 4.2

PRIME:

Start Time: 6.00

Fininsh Time: 7.30

PAINT:

Start Time: 11.00

Finish Time: 12.00

210

QC14- Inspect Spray Paint

0.00



QC

Memo

0.00

Quality Control

Then, Wrap in plastic bag to protect from scratches

MA

09.11.02 (1)

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Reference:

Cust Item ID:

Customer:

Approvals: Process Plan: \_\_\_\_\_ Date: \_\_\_\_\_ Tooling: \_\_\_\_\_ Date: \_\_\_\_\_

QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_

Run Start

Stop

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Draw Number	Draw Rev.	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
--------------------------------	--------------------------	----------------------	----------------	--------------	--------------	---------------	---------------	------------------	----------------

220



Crosstubes

Crosstubes

0.00

0.00

Memo

1- Lightly scuff the bonded area using a 320 grit sand paper and clean the area  
with 41058 wash 'n' wipe

2-Install supports with magnobond as per QSI 015 Adhere for for 12 Hrs

A/R 6398 Magnobond Batch: 112417

Torque: ml 09 11 03 ①

ml 09 11 02 ①

230



QC

Quality Control

QC5- Inspect part completeness to step on W/O

0.00

0.00

Memo

② 501463

④ f

240



Packaging

Packaging

Pick Kit

0.00

0.00

Memo

9/11/3 sl ②

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Approvals: Process Plan: \_\_\_\_\_ Date: \_\_\_\_\_ Tooling: \_\_\_\_\_ Date: \_\_\_\_\_

QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_

Run Start

Stop

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Draw Number	Draw Rev.	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
--------------------------------	--------------------------	----------------------	----------------	--------------	--------------	---------------	---------------	------------------	----------------

250

QC4- 100% Inspect kits for completeness

0.00



QC

Memo

0.00

Quality Control

→ 502104



p

260

Packaging

0.00



Packaging

Memo

0.00

Packaging

Identify and pack for shipping as per PPP D212-664-101

New E

C 9/11/09 (1)

270

QC21- Final Inspection - Work Order Release

0.00



QC

Memo

0.00

Quality Control

09/11/04

R 09-11-4

# Picklist Print

Friday, September 25, 2009 8:56:55 AM

Page 1

Work Order ID: 52455

Parent Item: D212-664-101RevC

Parent Item Name: Crosstube Fwd

Comments:

Start Date: 9/25/2009

Required Date: 10/12/2009

Start Qty: 1.00

Required Qty: 1.00

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Remaining Qty To Pick	Qty Issued	Date Issued	Status
---------------------------------	------------------------	---------------	-------------	---------------------	------------------	-----------------	--------------------	----------------	--------------------------	---------------	----------------	--------

D212-664-101TRNRevC

Manufactured No

110

Each

2.0000

1.0000



Crosstube Turning Detail



B-52739 MB 09-10-15

## Warehouse

## Loc Qty

## Loc Code

### Location

Main Warehouse

FG

2

51942

1

51943

1

D3595-063-450RevA

Manufactured No

230

Each

68.6689

4.2105



RUBBER CUSHION



## Warehouse

## Loc Qty

## Loc Code

### Location

Main Warehouse

LG

63.7

50953

63.7

Main Warehouse

ST

4.9689

38959

2

43210

2.59

46465

0.3789

ml 091102



# Picklist Print

Friday, September 25, 2009 8:56:55 AM

Work Order ID: 52455

Parent Item: D212-664-101RevC

Parent Item Name: Crosstube Fwd



Comments:

Start Date: 9/25/2009

Required Date: 10/12/2009

Start Qty: 1.00

Required Qty: 1.00

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Remaining Qty To Pick	Qty Issued	Date Issued	Status
MS21920-25 		Purchased	No			220	Each	159.0000	4.0000 			
Clamp(per MIL-DTL-8783C)												

<u>Warehouse</u>	<u>Loc Qty</u>	<u>Loc Code</u>
<u>Location</u>		
Main Warehouse		
ST	159	
107456	2	
108111	3	
108975	17	
109181	48	
109644	10	
111282	4	
111429	25	
<u>112495</u>	50	

ml 09 11 02

D2893-1RevB

Manufactured No



2.75 Support

220 Each 48.0000 2.0000



<u>Warehouse</u>	<u>Loc Qty</u>	<u>Loc Code</u>
<u>Location</u>		
Main Warehouse		
ST	48	
25657	6	
46488	4	
47109	18	
<u>47637</u>	20	

ml 09 11 02

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Friday, September 25, 2009 8:56:55 AM

Work Order ID: 52455

Parent Item: D212-664-101RevC

Parent Item Name: Crosstube Fwd



Comments:

Start Date: 9/25/2009

Required Date: 10/12/2009

Start Qty: 1.00

Required Qty: 1.00

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Remaining Qty To Pick	Qty Issued	Date Issued	Status
D3428-1RevA  Placard		Manufactured	No			240	Each	29.0000	1.0000 		9/11/3 SP	

Warehouse                      Loc Qty                      Loc Code  
Location


Main Warehouse

ST096

29

50790

29

AN6-35A  
  
BOLT

Purchased

No

240

Each

86.0000

4.0000  


9/11/3 SP

Warehouse                      Loc Qty                      Loc Code  
Location


Main Warehouse

ST

86

112314

86

AN6-36A  
  
Bolt

Purchased

No

240

Each

121.0000

4.0000  


4x SP

9/11/3

@SV

Warehouse                      Loc Qty                      Loc Code  
Location

Main Warehouse

ST

121

109632

1

110382

2

111650

18

112314

100

4x SP

# Picklist Print

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Parent Item: D212-664-101RevC

Parent Item Name: Crosstube Fwd



Comments:

Start Date: 9/25/2009

Required Date: 10/12/2009

Start Qty: 1.00

Required Qty: 1.00

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Remaining Qty To Pick	Qty Issued	Date Issued	Status
MS21042L6  Nut		Purchased	No			240	Each	697.0000	6.0000 		9/11/3 SP	

Warehouse Loc Qty Loc Code

Location

Main Warehouse

ST	697
105077	22
110002	5
111548	70
111578	400
<u>112492</u>	200

AN960JD616

Purchased

No

240

Each

538.0000

8.0000  


6x50

9/11/3

SP

(R)

Washer

Warehouse Loc Qty Loc Code

Location

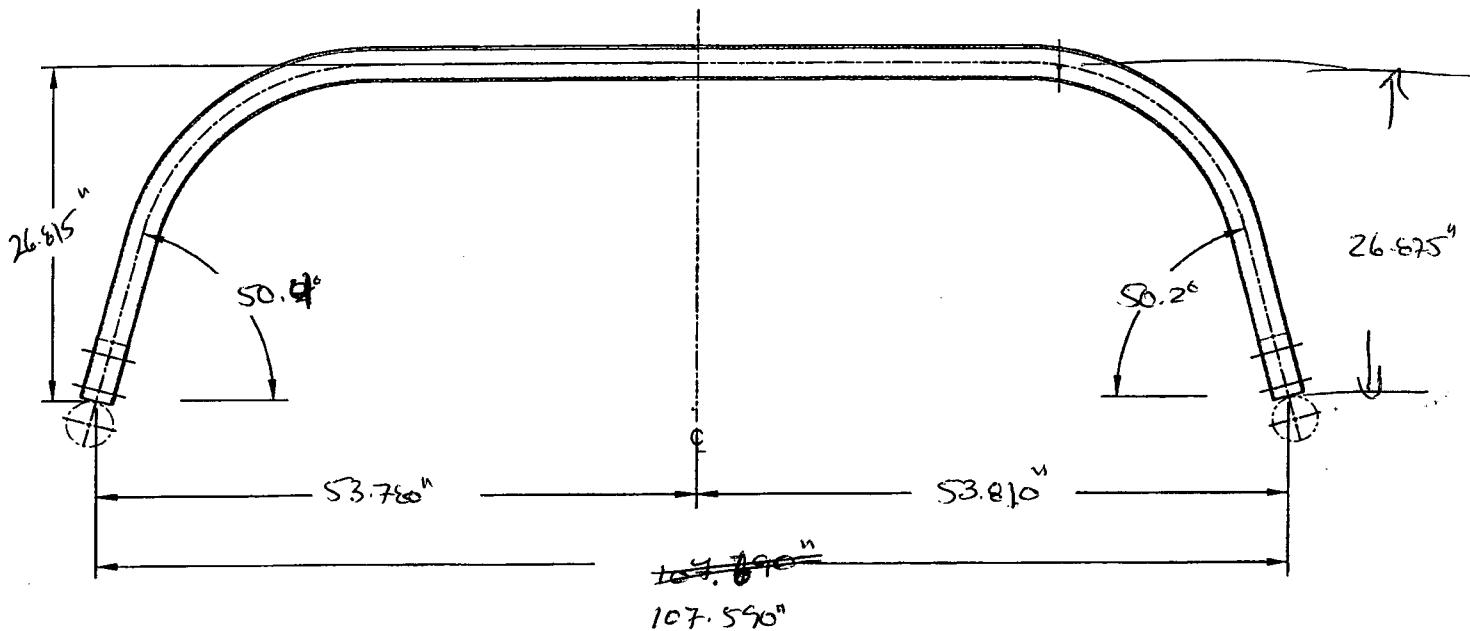
Main Warehouse

ST	538
<u>112314</u>	538

18x50

<b>DART AEROSPACE LTD</b>	<b>Work Order:</b>	52455
<b>Description:</b> Crosstube High Fwd (205/212/412)	<b>Part Number:</b>	D212-664-101
<b>Inspection Dwg:</b> D212-664-141 <b>Rev:</b> C		<b>Page 1 of 1</b>

Required Dimension	Min	Max
Height	26.79	27.05
1/2 Span	53.59	53.85
Angle	49	52
Total Span	107.18	107.7



Comments

QC15 Inspection	S
Date	07/10/15

Rev	Date	Change	Revised by	Approved
A	07.02.06	New Issue	KJ/JM	
B	07.05.31	Dimensions updated per Dwg Rev C	KJ/JM	

**DART****RELEASED**

07.04.24

**DEO ATTACHED**

DESIGN <b>PH</b>	DRAWN BY <b>PH</b>	<b>DART AEROSPACE LTD</b> HAWKESBURY, ONTARIO, CANADA	
CHECKED <b>QP</b>	APPROVED <b>[Signature]</b>	DRAWING NO. D212-664-141	REV. C SHEET 1 OF 3
DATE 07.03.08		TITLE XTUBE ASS'Y (205/212/412 HI FWD) NTS	
A	00.12.12	NEW ISSUE	
B	05.02.04	ADD HOLES FOR COMPATABILITY WITH BHT/AA SKIDTUBES	
C	07.03.08	REMOVE -851 ABRASION STRIP; ADD MAGNOBOND 6398, CUSHION, REVERSE CLAMPS	

Qty	Part Number	Description
X	D212-664-141	CROSSTUBE ASSEMBLY (205/212/412 HIGH FWD)
1	D6005-128	CROSSTUBE
2	D2893-1	SUPPORT
4	D3595-063-450	RUBBER CUSHION
4	MS21920-25	CLAMP (OR MS21920-26)
A/R	MAGNOBOND 6398	ROCKWELL SPECIFICATION RBO-120-023 ADHESIVE (TEXTRON/BELL SPEC. 299-947-100, TYPE II, CLASS 2 ADHESIVE)

**GENERAL NOTES:**

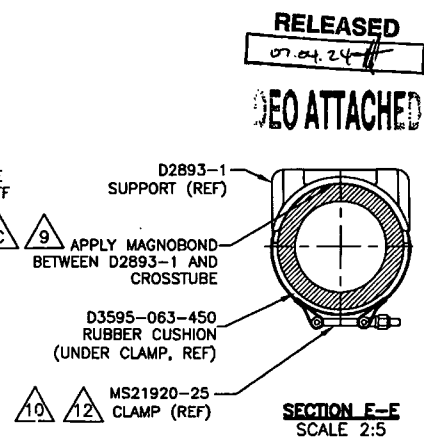
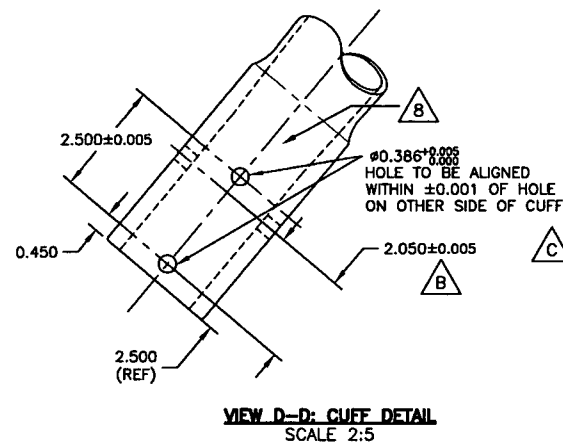
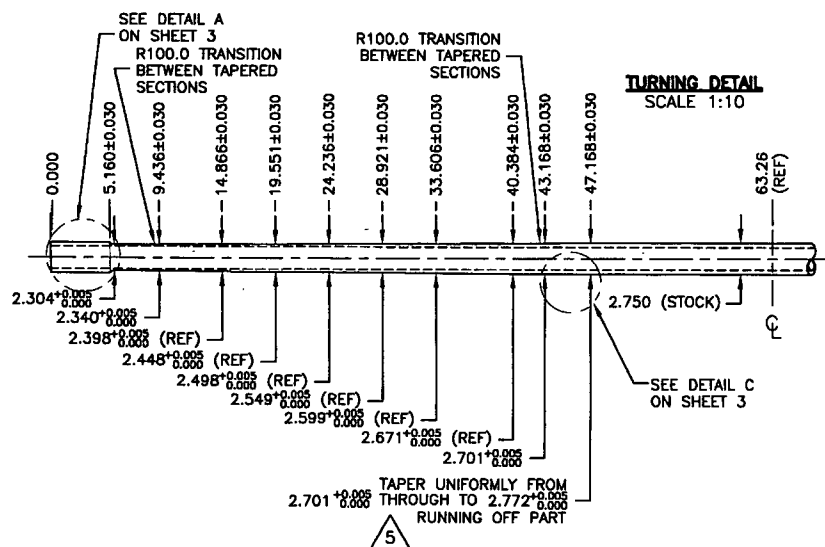
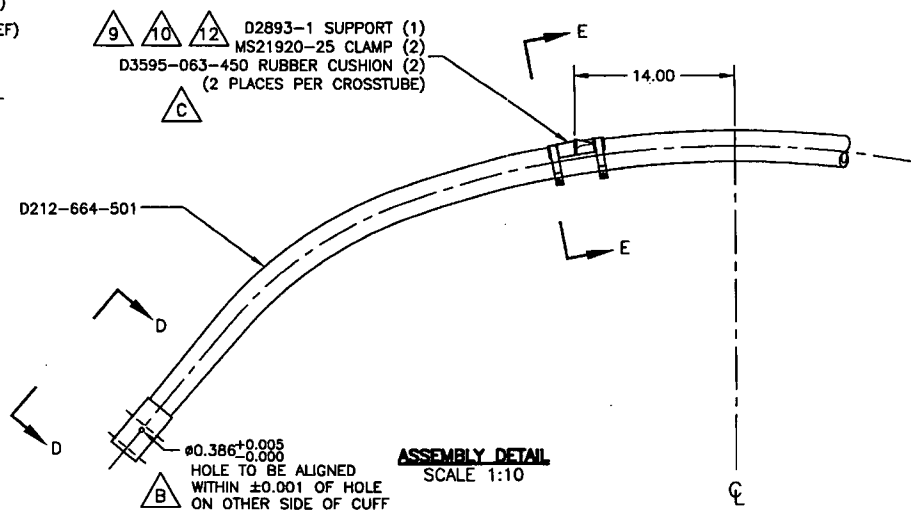
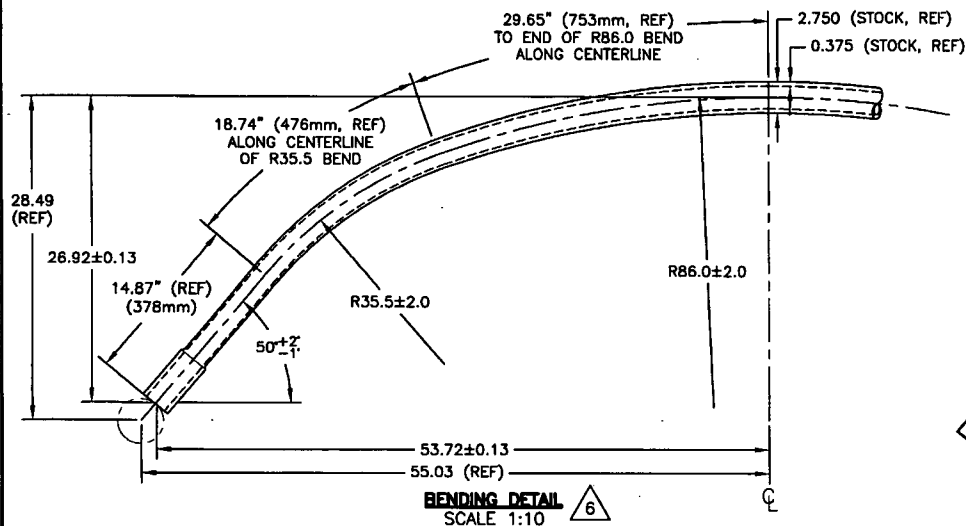
- 1) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED.
- 2) MATERIAL: MANUFACTURED FROM D6005-128  
FINISHED LENGTH = 126.51±0.020
- 3) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1  
PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2  
PAINT OUTSIDE PER DART QSI 005 4.2
- 4) PART IS SYMMETRIC ABOUT CENTERLINE.
- 5) RUN-OFF PART. BLEND OUT EDGE LONGITUDINALLY, TRANSITION SHOULD BE SMOOTH.
- 6) BEND PROGRESSIVELY WITH A MINIMUM OF 3 PASSES. MAXIMUM TUBE FLATTENING DUE TO BENDING IS 6% BASED ON O.D.
- 7) LIQUID PENETRANT INSPECT OUTSIDE SURFACE OF CROSSTUBE PER QSI 038.
- 8) SCRIBE DART PART NUMBER AND BATCH NUMBER IN THIS AREA WITH VIBRATING STYLUS.
- 9) INSTALL D2893-1 SUPPORT USING 0.03" TO 0.06" THICK LAYER OF MAGNOBOND 6398 PER QSI 015. LET CURE FOR 12 HOURS AFTER INSTALLATION AND PRIOR TO PACKAGING.
- 10) INSTALL MS21920-25 CLAMPS (OR -26) WITH D3595-063-450 RUBBER CUSHIONS TO SECURE THE D2893-1 SUPPORT ON TOP SIDE OF THE CROSSTUBE. ENSURE CLAMPS ARE OPPOSITE OF CROSSTUBE SUPPORT
- 11) EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS SCRATCHES, NICKS, OR DENTS. DEFECTS UP TO 0.005" MAY BE BLENDED OUT LONGITUDINALLY. CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE.
- 12) TORQUE CLAMPS 80 TO 100 IN-LB. ENSURE AT LEAST 1.5 THREADS SHOWING IN SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING.

SHOP COPY  
RETURN TO  
ENGINEERING  
UNCONTROLLED COPY  
SUBJECT TO AMENDMENT  
WITHOUT NOTICE  
WORK ORDER  
NO. 52455

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W/0 52455



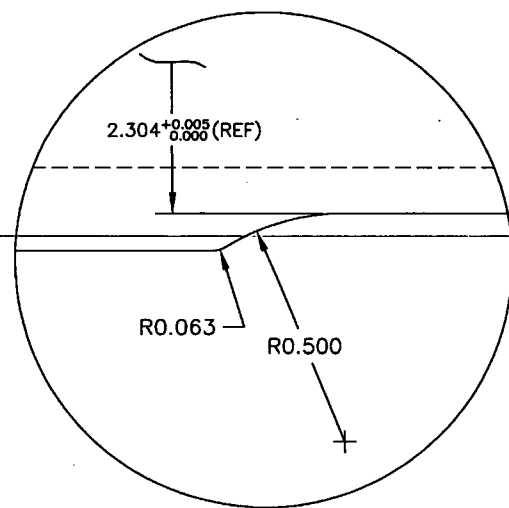
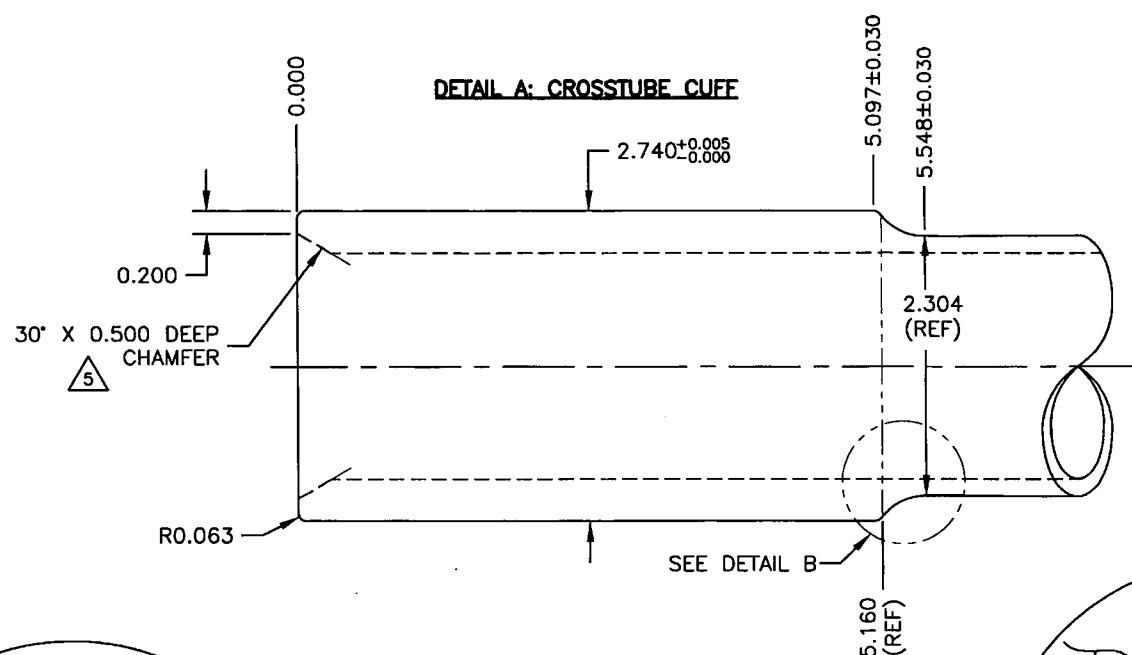
RELEASED  
07.04.24  
DEO ATTACHED

COPYRIGHT © 2000 BY DART AEROSPACE LTD.		DESIGN	PH	DRAWN BY	PH	<b>DART</b>	DART AEROSPACE LTD. WARRICKSLEY, ONTARIO, CANADA
THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.		CHECKED	97	APPROVED	4	DRAWING NO.	REV. C
		DATE	07.03.08			D212-664-141	SHEET 2 OF 3
						TITLE	SCALE
						XTUBE ASS'Y (205/212/412 HI FWD)	1:10

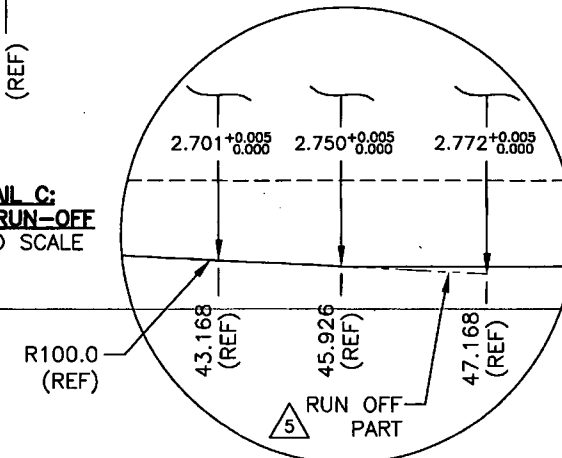
W/0 52455

**RELEASED**  
87.04.24 (P)  
PER ECN 887

**DEO ATTACHED**



**DETAIL C: TAPER RUN-OFF**  
NOT TO SCALE



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THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.		CHECKED	J	APPROVED	[Signature]	DRAWING NO.	D212-664-141
		DATE	07.03.08	TITLE		XTUBE ASS'Y (205/212/412 HI FWD)	
				SHEET 3 OF 3		SCALE 1:1	

W/6 52455

DRAWING NO. D212-664-141	TITLE CROSSTUBE	REV. C	DART AEROSPACE LTD ENGINEERING ORDER	D.E.O. NO. D212-664-141-C-1	SHEET NO. SHEET 1 OF 1	SCALE NTS
DRAWN AD	CHECKED R	MFG. APPR. E	APPROVED MD	DE APPR. H		
DATE 09.05.01	DATE 09.06.15	DATE 09.06.15	DATE 09/06/16	DATE 09/06/16		

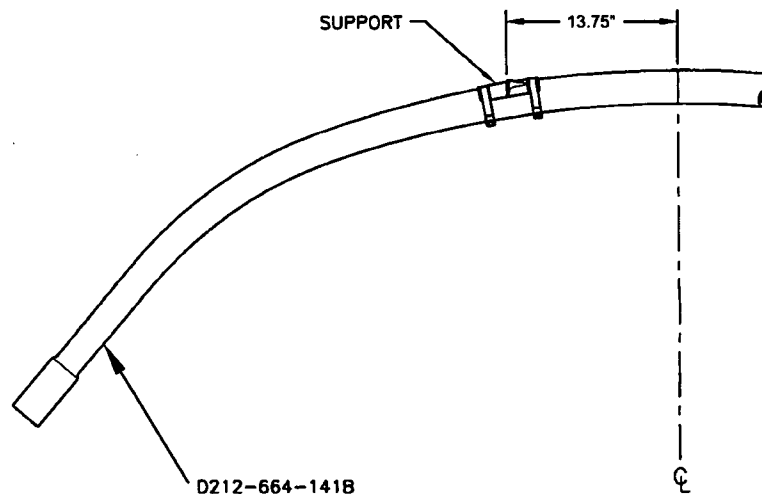
**CHANGE:**

ADD THE FOLLOWING CROSSTUBE ASSEMBLY:

Part Number	Description
D212-664-141B	CROSSTUBE ASSEMBLY (214 HIGH FWD)

THE D212-664-141B CROSSTUBE HAS THE SAME PARTS LIST AS THE D212-664-141 CROSSTUBE. HOWEVER, INSTALL THE SUPPORTS AS SHOWN IN FIGURE 1 OF THIS ENGINEERING ORDER. THE NEW KIT IS OTHERWISE ASSEMBLED PER THE D212-664-141 CROSSTUBE.

RELEASED  
09/06/22



**FIGURE 1 - SUPPORT INSTALLATION**



## 5.0 PARTS LIST

8  
all/04

## 5.1 HIGH GEAR CROSSTUBES

Item	-101	-201	-203	Part Number	Description
	X			D212-664-101	CROSSTUBE INSTALLATION, 204/205/210/212/214/412, UH-1H, UH-1A/B/E/F/L/P, TH-1F/L, HH-1K HIGH FWD
		X		D212-664-201	CROSSTUBE INSTALLATION, 204/205/210/212/214, UH-1H, UH-1A/B/E/F/L/P, TH-1F/L, HH-1K HIGH AFT
			X	D412-664-203	CROSSTUBE INSTALLATION, 412 HIGH AFT
1	1			D212-664-141	CROSSTUBE ASSEMBLY, 204/205/210/212/214/412, UH-1H, UH-1A/B/E/F/L/P, TH-1F/L, HH-1K HIGH FWD
2		1		D212-664-241	CROSSTUBE ASSEMBLY, 204/205/210/212/214, UH-1H, UH-1A/B/E/F/L/P, TH-1F/L, HH-1K HIGH AFT
3			1	D412-664-243	CROSSTUBE ASSEMBLY, 412 HIGH AFT
10	2			* D2893-1	SUPPORT
11	4			* D3595-063-450	RUBBER CUSHION
12	4			* MS21920-25	CLAMP (OR MS21042-26)
13	4			AN6-35A	BOLT
14	4			AN6-36A	BOLT
15	6			MS21042L6	NUT (OR MS21042-6)
16	18			AN960JD616	WASHER
20		2		* D2940-1	SUPPORT
21		4		* D3595-063-530	RUBBER CUSHION
22		4		* MS21920-28	CLAMP (OR MS21042-30)
23		4		AN6-40A	BOLT
24		2		AN6-41A	BOLT
25		6		MS21042L6	NUT (OR MS21042-6)
26		18		AN960JD616	WASHER
30			1	* D2896-1	SUPPORT
31			2	* D2856-600-1009	ABRASION STRIP
32			2	* D3595-063-570	RUBBER CUSHION
33			4	* MS21920-28	CLAMP
34			2	* MS21920-30	CLAMP (OR MS21042-32)
35			4	AN6-40A	BOLT
36			2	AN6-41A	BOLT
37			6	MS21042L6	NUT (OR MS21042-6)
38			18	AN960JD616	WASHER
39			2	* D3189-1	CHAFING SHIELD
50	1	1		D3428-1	PLACARD

\*REFERENCE ONLY. PARTS ARE INCLUDED IN D212-664-141/-241 OR D412-664-243 ASSEMBLIES ABOVE  
NOTE: KITS INCLUDE EXTRA HARDWARE FOR COMPATIBILITY WITH BOTH DART AND BELL/AA  
SKIDTUBES.

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Revision: F

Date: 08.09.05

52455



## LIQUID PENETRANT TEST REPORT

P- 15030

PAGE 1 OF 1

ION Dart Aerospace DATE Oct 28<sup>th</sup> 09 TIME AM ☐ PM ☐  
SS Linda Lacelle ACUREN JOB NO. 188-09-1626  
IT 1270 Aberdeen St. PO/WO No. 10655  
EXAMINED Hawkesbury WORK LOCATION Hawkesbury  
ACCEPTANCE STD. ASTM 1417/021-032 REV./DATE 2005  
X-Tubes D212-664-201, D212-664-107, D212-664-101 - D206-667-103  
Sob #s 51068, 51069, 52218, 52454, 52455, 52456, 52539, 52540

DESCRIPTION PROCEDURE No. LT-000 REV./DATE TECHNIQUE No. LT-TEC# 07 REV./DATE  
D212-664-201, D212-664-107, D212-664-101 MATERIAL ALBOINED ALUM. THICKNESS  
WET FLOURESCENT LIQUID PENETRANT INSPECTION CARRIED OUT  
ON 100% EXTERNAL SURFACE

DETAILS  
☒ FLUORESCENT ☐ VISIBLE ☒ WATER WASH ☐ SOLVENT REMOVABLE ☐ POST EMULSIFIED  
BRAND MAGNAFLUX BLACK LIGHT S/N 8178 ☒ OUTPUT > 1000  $\mu$ W/cm<sup>2</sup> ☐ AMBIENT < 2 fc  
DYE ZL67 MINIMUM DWELL TIME 45 MIN. LIGHTING EQUIP. ☒ FLASHLIGHT ☐ TROUBLELIGHT ☐ OUTPUT > 100 fc @ SURFACE  
DYE REMOVER H<sub>2</sub>O MINIMUM DRY TIME >10 MIN. OTHER CAL JUNE 09  
DYE PER SKDS2 MINIMUM DWELL TIME 10 MIN. LIGHT METER S/N CAL DUE DATE DEC 09  
DYE PER TYPE ☒ NON AQUEOUS ☐ AQUEOUS ☐ DRY

SURFACE  
DYE CONDITION ☐ AS GROUND ☐ AS WELDED ☒ MACHINED ☐ SHOT BLASTED ☒ CLEAN BARE METAL  
DYE TEMPERATURE ☐ < -4°C/ 20°F ☐ -4°C/ 20°F TO 10°C/50°F ☒ 10°C/50°F TO 52°C/125°F ☐ > 52°C/125°F  
DYE TS- ☐ METRIC ☐ IMPERIAL

WET FLOURESCENT LIQUID  
PENETRANT INSPECTION  
CARRIED OUT ON 100%  
EXTERNAL SURFACE ON X-TUBES  
52540: ACCEPTABLE  
Sob #s 51068: ACCEPTABLE  
51069: ACCEPTABLE  
52218: ACCEPTABLE  
52454: ACCEPTABLE  
52455: ACCEPTABLE  
52456: ACCEPTABLE  
52539: ACCEPTABLE

MT 09 10 29

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of Care  
In the services provided, Acuren Group Inc. uses the degree, care and skill ordinarily exercised under similar circumstances by others performing such services in the same or similar locality. No other warranty, expressed or implied, is made or intended by Acuren Group Inc.

TURES  
REPRESENTATIVE Chantal Lacelle Frederick Chagnon DTR # E-27155  
ICIAN (SIGNATURE): Frederick Chagnon REPORT REVIEWED BY:  
(PRINT): FREDERICK CHAGNON NAME INITIALS  
1<sup>st</sup> TECHNICIAN 2<sup>nd</sup> TECHNICIAN  
CGSB LEVEL II SNT LEVEL II CGSB LEVEL SNT LEVEL  
CGSB REG. NO. 10560 CGSB REG. NO.